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ENERGY, CLIMATE AND SUSTAINABLE DEVELOPMENT

Access to energy : Experiences, Challenges and Dilemmas

Danida Development Days, 2007
Energy for Development in Africa

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Outline of presentation

- Access to modern energy
- Persistent dilemmas in energy intervention
- Energy, development and the MDGs
- Recommendations

Services rather than technologies

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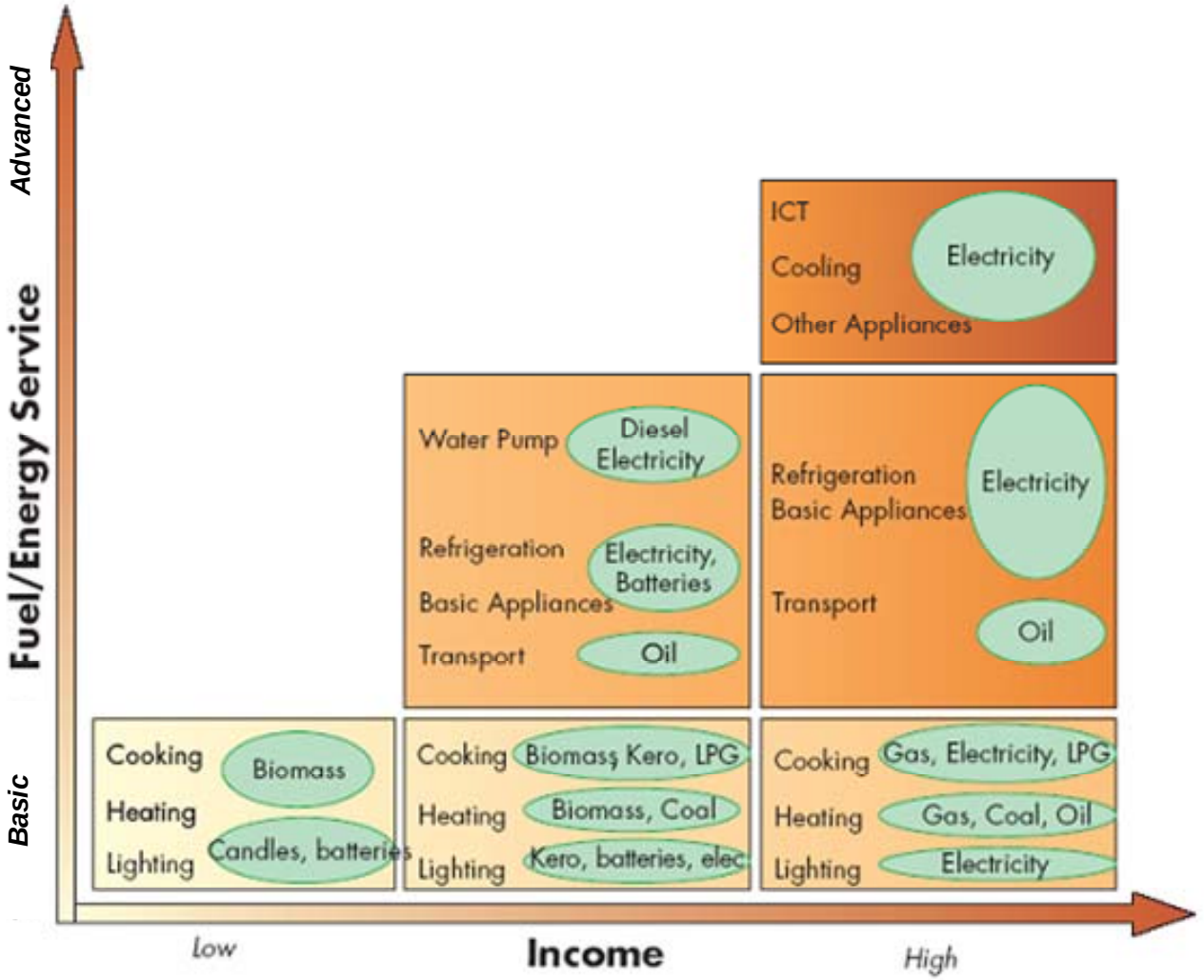

World Energy Outlook, 2002

Current levels of access to electricity

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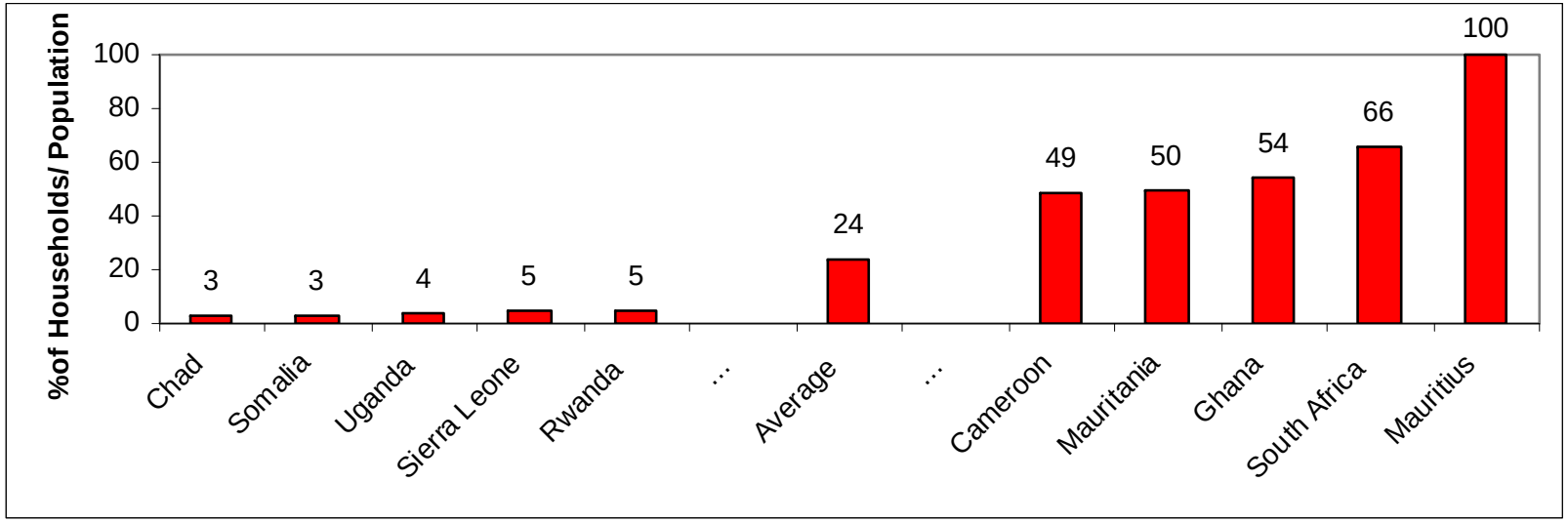

Source: The World Bank (2006) Dataset

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Persistent intervention dilemmas

- Large scale infrastructure – decentralised supply
- Renewable energy – fossil fuels
- Subsidy – full costs recovery
- Rural – urban focus
- Public – private ownership
- Support to infrastucture (energy) or direct poverty oriented support to water, health and education

Large scale infrastructure or decentralised supply

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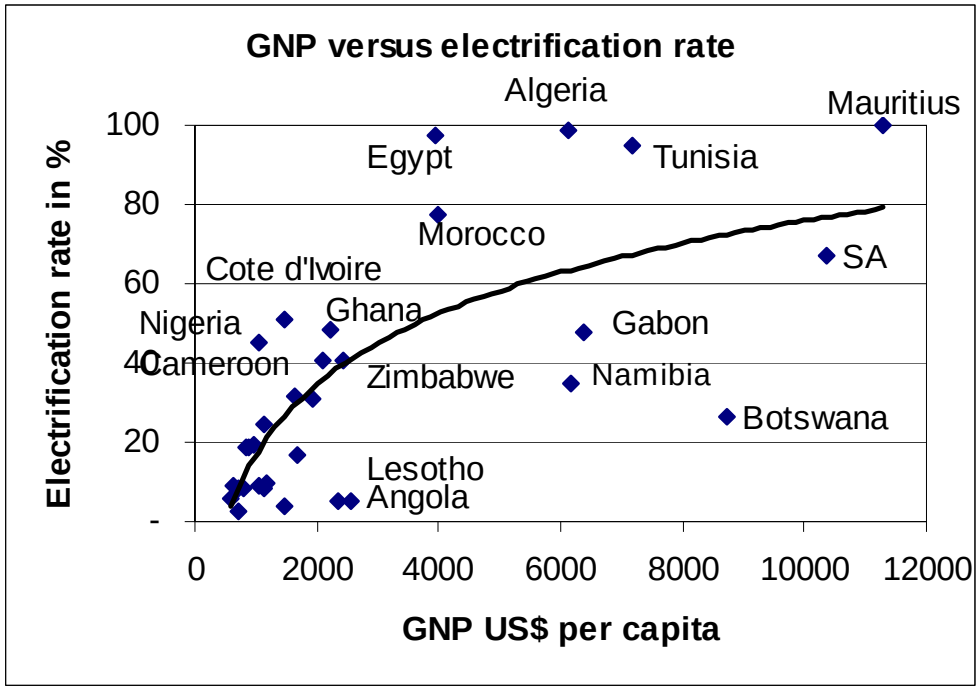
- Close relationship between cost of electricity (hydropower) and rural electrification rates
- Cheap electricity from hydro, gas and regional interconnections is an important precondition for achieving high access rates
- Decentralised solutions outside grid connected areas to build up demand



Renewable or fossil – a question of price

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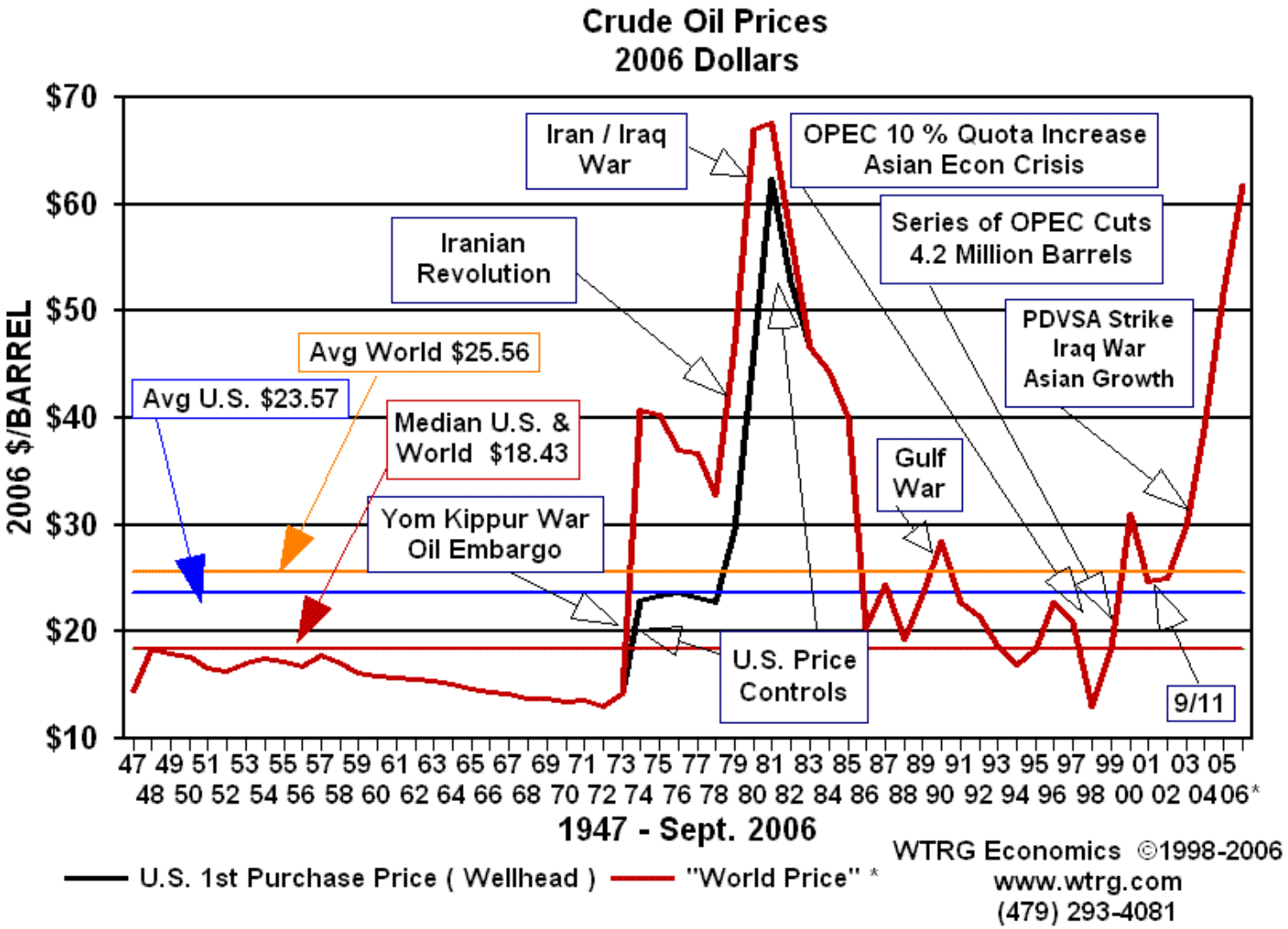

Renewable energy or fossil fuels - depending on context

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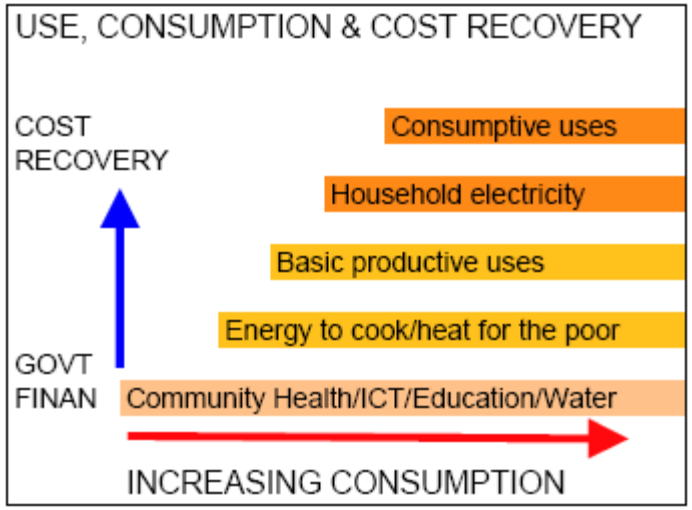
- Important to opt for the cheapest solutions to the rural poor and to use renewables where adequate
  - Solar PV should only be used where economic feasible
  - Important to compare the quality of service from PV, gridconnection
- Small scale hydropower for electricity
- Biomass waste for electricity
- Large hydropower an option in some places in Africa with low population density
- Biofuels – from jatropha, bagasse, waste products ??

Subsidy or full cost recovery

Rather level of subsidy dependent on:

- Country income level
  - South Africa – Burkina Faso
- Use of energy
  - community/health/ education/water
  - productive use
  - household electricity
  - consumptive use



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Rural or urban focus ?

- Rural poor
  - Important for basic infrastructure needs
  - Creating local employment
  - Reducing rural-urban migration
  - Maintaining teachers in the rural areas

  Difficulties
  - High level of subsidy needed
    - Often non grid solutions

- Urban poor
  - More value for money
    - Grid extension possible
    - High density of consumption
  - Safety issues important
  - Create local employment

  Difficulties
  - Electricity for schools and health centres in nearby areas.
  - Integrated with problems of legal settlement rights

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Public or private ownership

- Power sector reform has not increased private investment in infrastructure as anticipated. Rather uncertainty has led to drop in investment. (drought, power cuts, emergency capacity)
- Creation of stable and reliable institutional and regulatory frameworks (regulators, stock markets) are one of the means to increase investments
  - Introduction of Kengen on the Kenyan Stock market
- Power sector reforms were not designed to increasing rural electrification. History shows that the most successful electrification programmes were implemented in countries with state owned utilities
  - Morocco, Thailand, Egypt
- Stable and committed effort from governments and utilities are important factors
  - Morocco, Thailand

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Energy and economic development

A necessary, but not sufficient condition ?

Since energy underlies all economic activity, human ***development may be severely impeded*** *by a lack of energy infrastructure.*

(World Energy Outlook, 2004, p. 341)

There is almost unanimous agreement that energy ***plays a pivotal role*** *in national development. Generally, there is* ***a high degree of correlation*** *between energy use, economic growth, and level of development*

(Cabraal et al, 2005) World Bank

Energy and the MDG's poverty reduction

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- Access to affordable energy services from gaseous and liquid fuels and electricity enables enterprise development.
- Lighting permits income generation beyond daylight hours.
- Machinery increases productivity.
- Local energy supplies can often be provided by small scale, locally owned businesses creating employment in local energy service provision and maintenance, fuel crops, etc.
- Privatisation of energy services can help free up government funds for social welfare investment.
- Clean, efficient fuels reduce the large share of household income spent on cooking, lighting, and keeping warm (equity issue - poor people pay proportionately more for basic services).
- The majority (95 percent) of staple foods need cooking before they can be eaten and need water for cooking.
- Post-harvest losses are reduced through better preservation (for example, drying and smoking) and chilling/freezing
- Energy for irrigation helps increase food production and access to nutrition

DFID, 2002. Energy for the poor: Underpinning the Millennium Goals

Modi et al, 2005. Energy Services for the Millennium Development Goals. WB and UNDP

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Energy and the MDGs

- Poverty and hunger (1)
- Primary education (2)
- Improve maternal health (5)
- Child mortality (4)
- Environmental sustainability (7)

- Jobs, agricultural activities, micro enterprises, etc.
- Reduce girls workload from collecting water, wood fuel, light at night
- Light at health centres, reduced smoke
- Reduce air pollution, boiled water
- Reduce air pollution and land degradation

This has lead some to use a wide definition of productive use, including use for reproduction: education and health.

A multisectoral approach to supporting energy access

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- Consideration of energy issues in all development assistance
  - Agriculture
  - Health
  - Education
- Include energy in general poverty alleviation interventions, and in PRSPs
- Budget support or programme support instead of project support

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Need of increased investments

Huge need of investment to both national and regional projects:

- Large scale electricity production (hydropower, natural gas)
- Transmission of electricity and natural gas
- Investment in grid and non grid connected rural electrification

This will be a challenge for a cooperation between:

- Development agencies
- Development banks
- Private investors.